

The National Children's Study of Environmental Effects on Child Health and Development

Pauline Mendola

Health Scientist

U.S. EPA Office of Research and Development (ORD)/National Health and Environmental Effects Research Laboratory (NHEERL)

(919) 966-6953

mendola.pauline@epa.gov

Authors: Pauline Mendola, U.S. EPA ORD/NHEERL/RTP; James Quackenboss, U.S. EPA ORD/National Exposure Research Laboratory (NERL)/LV; Sherry Selevan, U.S. EPA ORD/National Center for Environmental Assessment (NCEA)/Washington Division; Rebecca Brown, U.S. EPA ORD/NCEA/Washington Division

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The Children's Health Act of 2000 authorized a consortium of Federal agencies, including the U.S. Environmental Protection Agency (U.S. EPA), to develop and implement a prospective cohort study, evaluate the effects of both chronic and intermittent exposures on child health and human development, and investigate basic mechanisms of developmental disorders and environmental factors that influence health and developmental processes. The National Children's Study (NCS) is the result of a multi-agency collaborative research effort aimed at addressing a number of issues, including the following questions. (1) What is the contribution of environmental exposures to child health and development? (2) Are there long-term health effects from early life exposures? (3) Are certain population subgroups more susceptible to environmental contaminants than others, and which factors alter susceptibility (e.g., specific genetic polymorphisms, immune deficiencies)? (4) What factors account for disparities in health outcomes (e.g., race, ethnicity, poverty, environmental quality, housing, income, nutrition)? (5) What are the effects of aggregate or cumulative exposures? (6) Are uncertainty factors and defaults in risk assessment sufficient to protect children's health?

The NCS will enroll women as early as possible in pregnancy, including some before conception, and will follow their children into adulthood (approximately 21 years of age). Outcomes of interest include pregnancy outcomes, growth and neurobehavioral development, asthma, injuries, and obesity and physical development. Environmental factors to be studied include chemical, physical, biological, behavioral, and social factors, as well as genetic factors and their interactions with the environment. The size of the study (100,000 newborn children) will provide a database to answer many questions about the effects of children's exposures to environmental contaminants, including those in which only a small percentage of the population experiences an effect, and to detect combined effects of low level exposures.

Planning and protocol development for the NCS is well underway, and the study is expected to be launched in late 2005. ORD scientists are working closely with scientists from the other lead agencies in the planning and design of the study and in developing and testing methods for data collection. The ORD/National Center for Environmental Research (NCER) is engaging the extramural scientific community to develop biological markers and other tools, such as questionnaire or environmental information for the NCS.

Findings from the NCS will help determine whether early life exposures to chemicals, such as

pesticides, increase the risk of conditions, such as autism and other developmental disabilities.